

SFRM Temperature Guidelines

The temperatures at which Spray-Applied Fireproofing, also known as Spray-Applied Fire Resistive Materials (SFRMs), can be installed are critical to its long-term fire and physical performance characteristics.

Isolatek International and other industry manufacturers state, “When the prevailing outdoor temperature at the building is less than 4° C (40° F), a minimum substrate and ambient temperature of 4° C (40° F) shall be maintained prior to, during, and a minimum of 24 hours after application of the Spray-Applied Fire Resistive Material”.

Traditional SFRMs require the use of water either at time of mixing or at the nozzle prior to application onto the steel substrate. Once the SFRM has been applied to the substrate, it must cure properly in order to exhibit acceptable physical performance characteristics. When SFRMs are subjected to temperatures below 4° C (40° F) after initial application to the steel, the binders are not allowed sufficient time to hydrate. This can result in poor adhesion qualities of the SFRM to the substrate and adversely affect the overall fire performance.

It is critical that the substrate and ambient temperatures are equal to or exceed 4° C (40° F) immediately prior to, during, and a minimum of 24 hours after application. Sufficient heat must be provided so that these temperature requirements are met. Coordination between the SFRM Applicator and the General Contractor is necessary so that the heating process is not compromised during the initial 24-hour time period.

Coupled with maintaining proper temperature is the need for sufficient air exchanges to fully dry the SFRM. The introduction of any moisture into areas containing SFRMs can present adverse conditions and result

in unacceptable performance. The types and use of heaters is important. Both propane and kerosene heaters often introduce large amounts of moisture into the area being heated. When utilizing heaters, it is imperative that proper ventilation practices be exercised. In addition, when utilizing heaters to achieve minimum substrate and ambient temperatures, tarp enclosures are recommended to contain the heat within areas where SFRMs are being installed.

Freezing temperatures can contribute to delays in the SFRM scheduling. Aside from traditional SFRMs, another type of fire protection product exists that does not require the use of water during application.

Rigid Board Fire Resistive Material is primarily composed of mineral wool and can provide equivalent fire resistance ratings as those achieved through the use of traditional SFRMs. By not requiring water during installation, Rigid Board Fire Resistive Materials can be installed at any time throughout the building construction cycle. It is mechanically held in place utilizing a variety of attachment systems and does not rely on the steel temperature for its adhesion qualities.

Rigid Board Fire Resistive Materials can also be used in conjunction with compatible SFRMs to form a “composite system”. These systems often prove valuable in keeping the building construction cycle on or ahead of schedule. One of the most widely used “composite systems” allows for the installation of Rigid-Board Fire Resistive Material to the perimeter steel during freezing temperatures. The exterior sheathing of the building is then installed, allowing for the heating of the internal structural steel. Once the inside ambient and substrate temperature of the internal steel has reached a minimum 4° C (40° F), the application of SFRMs may begin.

Strict adherence to the specified temperature guidelines is a critical factor when applying SFRMs and directly relates to proper in-place performance.

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